Dobór nawilżaczy

Nazwa projektu
PODiG Nowy Tomysl

Numer projektu
CP/298/KLE/POZ/21

Data utworzenia
30.11.2021

Reprezentowany przez
Condair Polska Sp. z o. o.
Ostrobramska 101
Warszawa, Warszawa, Poland

Osoba odpowiedzialna
Katarzyna Leśna

Lista stref

Etykieta strefy	Q_{MA} m³/h	Q_{OA} %	DB_{OA} °C	RH_{OA} %	DB_{BH} °C	RH_{BH} %	DB_{AH} °C	RH_{AH} %	DB_{SD} °C	RH_{SD} %	$W_{Kana?}$ mm	$H_{Kana?}$ mm	H_{TOT} kg/h	Absorpcja m	Lokalizacja	Technologia
EL	2000	0			16	38	16	65			1000	400	7	0,30	W kanale	EL

Q_{MA}	= Objętość mieszanego powietrza	Q_{OA}	= Powietrze zewnętrzne
DB_{OA}	= Projektowa temperatura termometru suchego powietrza zewnętrznego	RH_{OA}	= Projektowa wilgotność względna powietrza zewnętrznego
DB_{BH}	= Temperatura termometru suchego przed nawilżaniem	RH_{BH}	= Wilgotność względna przed nawilżaniem
DB_{AH}	= Temperatura termometru suchego po nawilżaniu	RH_{AH}	= Wilgotność względna po nawilżaniu
DB_{SD}	= Projektowa temperatura termometru suchego pomieszczenia	RH_{SD}	= Projektowa wilgotność względna pomieszczenia
$W_{Kana?}$	= Szerokość kanału	$H_{Kana?}$	= Wysokość kanału
H_{TOT}	= Całkowite nawilżenie	Absorpcja	= Odległość absorpcji

Zestawienie materiałów

Strefa	Part Number	Item	Ilość
EL	5210254	EL 8 400V3 S, KIT-S, CL	1
EL	1103350	przewód giętki kondensatu KS10 12/8 mm w zwojach o długości do 50 m, sprzedawany na metry	4
EL	1100416	filtr otworu wlotowego wody Z261	1
EL	ELC_DWC-B-S	DWC-S, Drain Water Cooling, EL Small	1
EL	2559251	Czujnik wilgotności CDC do montażu na przewodzie	1
EL	2559259	Urządzenie humidistat CHD do montażu na przewodzie	1
EL	1115270	Przewód rozprowadzania pary 41-800	1
EL	2586148	DS22 (8 kg/h), 20 m	4

Karta katalogowa - EL

Seria EL - Elektroda parowa

Nazwa projektu:	PODiG Nowy Tomysl
Numer Projektu:	CP/298/KLE/POZ/21
Sprzedawca:	Katarzyna Leśna
Data:	30.11.2021

Podstawa obliczeń

Obciążenie nawilżaniem (Całkowity)	7,4 kg/h
Wymiary kanału	1000 x 400 mm
Duct Orientation	Poziomo
Całkowity przepływ powietrza	2000 m^3/h
Prędkość powietrza	1,4 m/s
Wysokość nad poziomem morza	84 m
Gęstość powietrza	1,20 kg_{da}/m^3
Przyrost wilgotności	3,1 g/kg

Przed nawilżaniem	Temperatura	16°C
	Wilgotność względna	38 %
	Wilgotność Bezwzględna	4,3 g/kg
Po nawilżaniu	Temperatura	16°C
	Wilgotność względna	65 %
	Wilgotność Bezwzględna	7,4 g/kg

Dane produktu

EL 8 400V3 S, KIT-S, CL

Moc znamionowa:	6 kW	Minimalne ciśnienie wody:	1 bar
Maksymalna moc:	6 kW	Maksymalne ciśnienie wody:	10 bar
Obwód zasilający:	400/3/50-60 V/Ph/Hz	Szerokość:	420 mm
Prąd znamionowy:	8.6 A	Wysokość:	670 mm
Maksymalne natężenie:	8.6 A	Głębokość:	370 mm
Wielkość bezpiecznika/wyłącznika:	3x 16 A	Waga netto:	27 kg
Cylindry:	1	Całkowity ciężar:	40 kg
Typ cylindra:	A363	Odstęp od frontu:	600 mm
Wylot pary:	22 mm	Odstęp od lewej:	250 mm
Ilość wylotów pary:	1	Odstęp z prawej:	400 mm
Współczynnik napełnienia:	0.5 L/min	Odstęp od sufitu:	400 mm
Współczynnik drenażu:	14.0 L/min	Odstęp od podłogi:	600 mm
Pojemność nominalna:	8 kg/h	Zasilanie wodą:	G 3/4" mm
Minimalny zakres wyjścia:	1,6 kg/h	Króciec drenażu:	30.00 mm
Maksymalna wydajność:	8 kg/h	Powrót kondensatu:	8.00 mm

Przewód rozprowadzania pary 41-800

Dystans nawilżania (Bn):	0,3 m	Długość produktu:	800 mm

Ilość rur parowych: 1

A1 - EL (5210254) Opis

Condair EL electrode steam humidifier

The steam humidifier Condair EL is a pressure less steam generator that utilizes an electrode heating.

The unit arrives completely assembled for wall mounting. All models feature full frontal and side access via removable doors. Constructed from corrosion resistant materials with a scratch resistant powder paint finish. Steam distribution can be accomplished by using a steam distributor or Short Absorption Steam distribution can be circulated by using a steam distributor or Short Absorption Manifold OptiSorp for mounting into AHU/duct or Remote Mounted Blower Pack.

Functional description

Any time steam is requested, the electrodes are supplied with voltage via main contactor. Simultaneously, the inlet valve opens and water enters the steam cylinder from the bottom via water cup and supply line. As soon as the electrodes come in contact with the water, current begins to flow between the electrodes, eventually heating and evaporating the water. The more the electrode surface is exposed to water, the higher is the current consumption and thus the steam capacity. As a result of the evaporation process, the conductivity of the water increases due to an escalating mineral concentration. Eventually, an inadmissibly high current consumption would take place if this concentration process were permitted to continue. To prevent this concentration from reaching a value, unsuitably high for the operation, a certain amount of water is periodically drained from the cylinder and replaced by fresh water.

Condair Auto-Adaptive Control water management:

Advanced water management utilizing the patented Proportional plus Integral Auto-Adaptive Control system for optimal energy efficiency, water usage and cylinder life. The humidifier operates exclusively with untreated drinking water with a conductivity of 125 - 1250 µS/cm. It drains automatically optimized to water conditions to maximize cylinder life and reduce water usage.

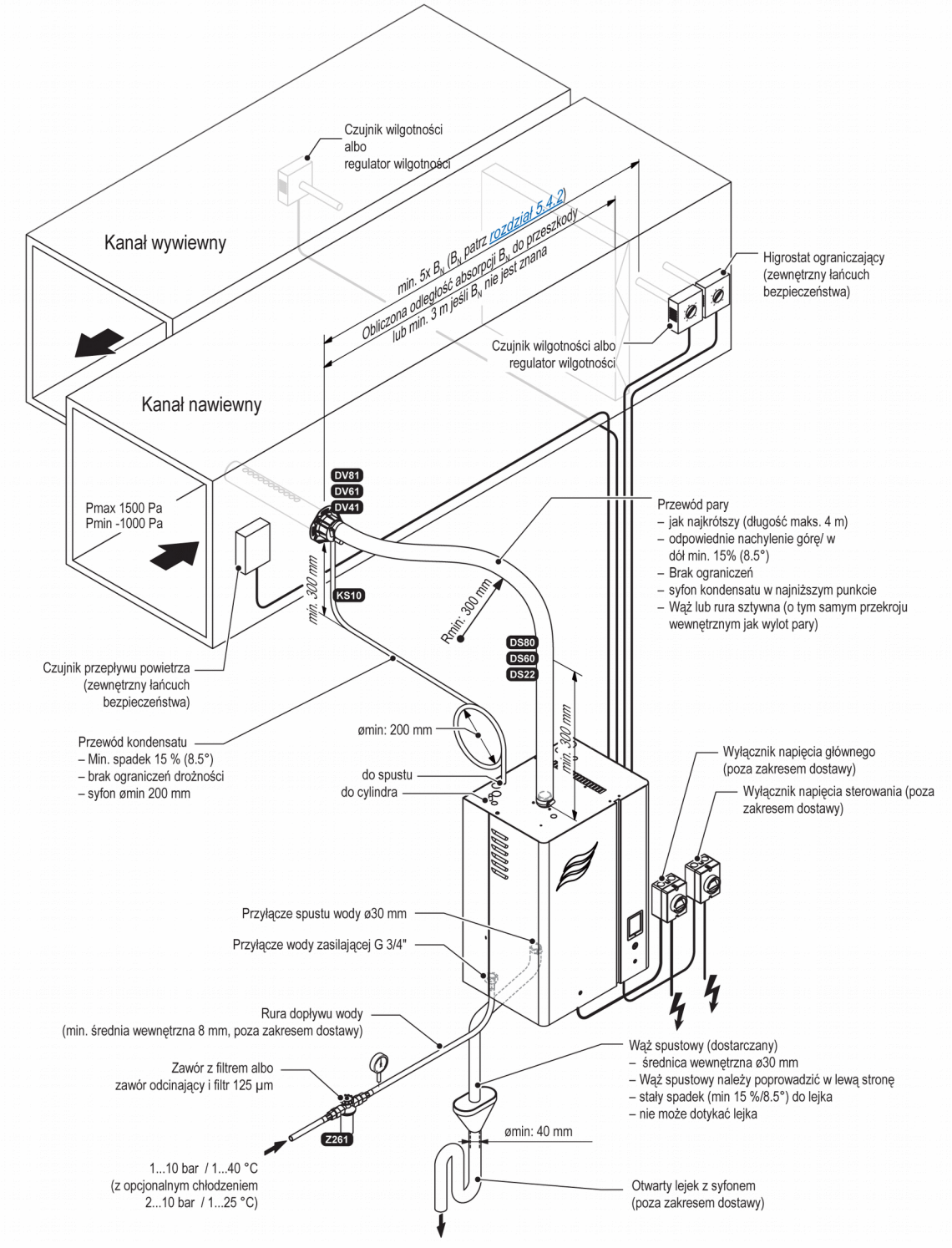
A robust pump drain system removes the waste water. There is an automatically controlled (software monitored) drain as well as a manual override. The output is modulating between 20% and 100% of rated capacity.

Touch screen control

The touchscreen interface is easy to navigate, with lots of parameters for the user to monitor and optimize. Extensive help dialogs are offered at most every screen. The sophisticated software algorithm controlling the auto-adaptive water control ensures stable humidity output at full- or partial humidification load.

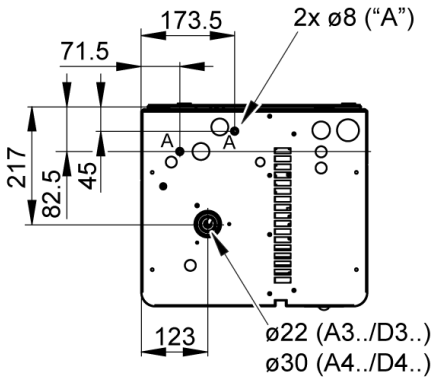
A2 - EL (5210254) Instalacja

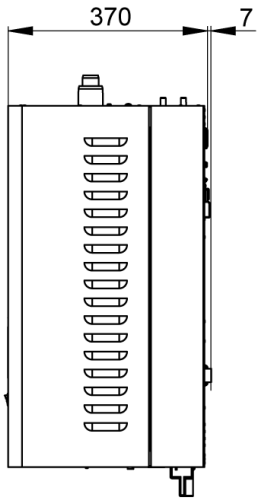
Typowa instalacja do nawilżania kanałowego

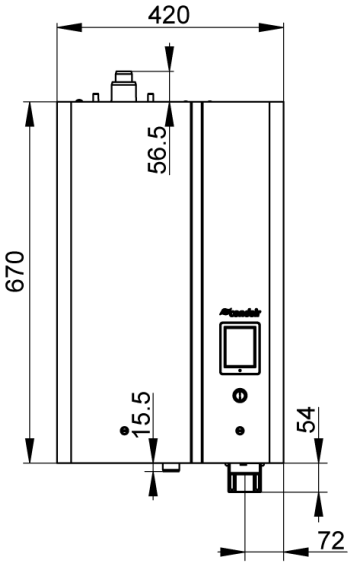


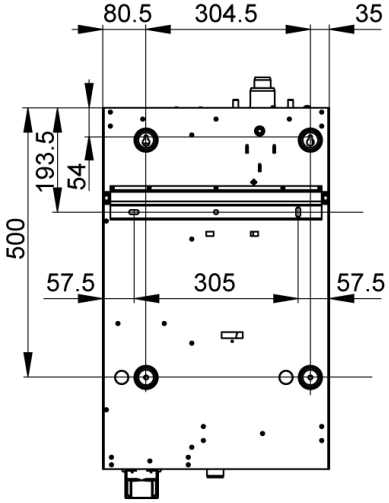
A3 - EL (5210254) Rysunek

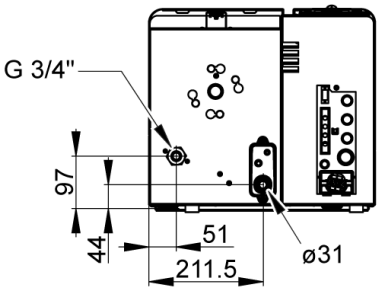
Wymiary jednostek Condair EL 5 - 15, wielkość "S"







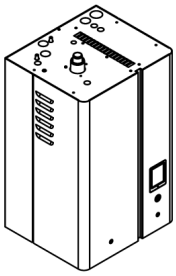


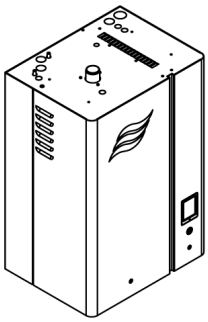


A4 - EL (5210254) Rysunek

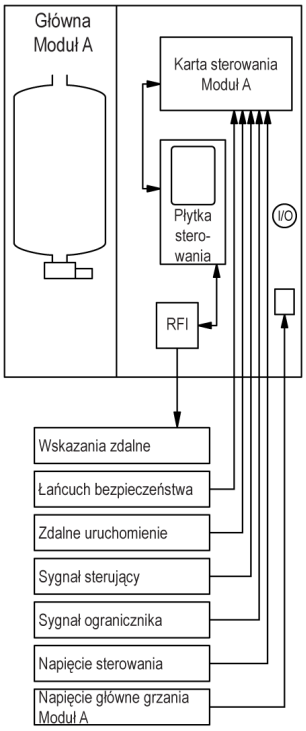
Jednostki pojedyncze małe ("S"), EL 5...15 i średnie ("M"), EL 20...45

Wielkość obudowy	Condair EL	200V/1~ kg/h	230V/1~ kg/h	240V/1~ kg/h	200V/3~ kg/h	230V/3~ kg/h	400V/3~ kg/h	415V/3~ kg/h	440V/3~ kg/h	460V/3~ kg/h	480V/3~ kg/h	500V/3~ kg/h	600V/3~ kg/h
S	...5...	5,0	5,0	5,0	5,0	5,0	5,0	5,0	5,0	5,0	5,0	5,0	5,0
	...8...	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0
	...10...	—	10,0	10,0	10,0	10,0	10,0	10,0	10,0	10,0	10,0	10,0	10,0
	...15...	—	—	—	15,0	15,0	15,0	15,0	15,0	15,0	15,0	15,0	15,0
M	...20...	—	—	—	20,0	20,0	20,0	20,0	20,0	20,0	20,0	20,0	20,0
	...24...	—	—	—	24,0	24,0	24,0	24,0	24,0	24,0	24,0	24,0	24,0
	...30...	—	—	—	30,0	30,0	30,0	30,0	30,0	30,0	30,0	30,0	30,0
	...35...	—	—	—	—	—	35,0	35,0	35,0	35,0	35,0	35,0	35,0
	...40...	—	—	—	—	—	40,0	40,0	40,0	40,0	40,0	40,0	40,0
	...45...	—	—	—	—	—	45,0	45,0	45,0	45,0	45,0	45,0	45,0



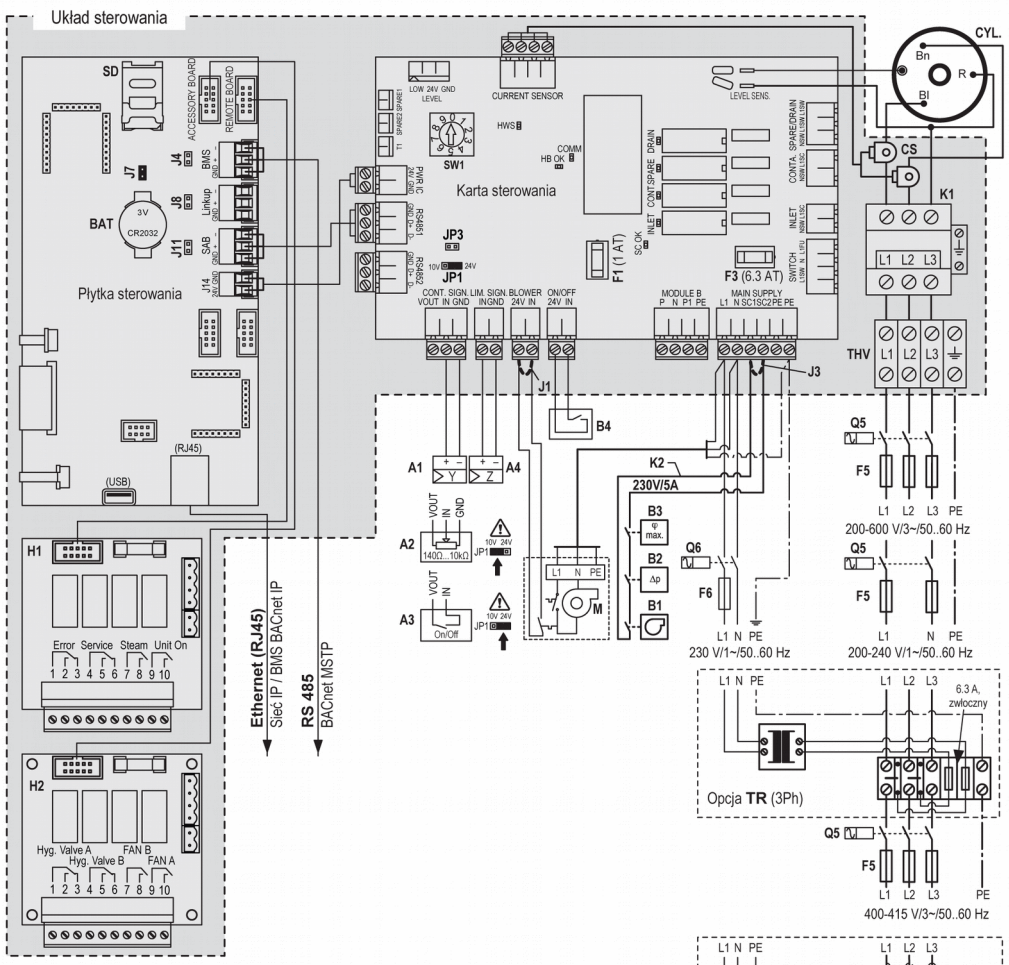


Jednostka główna Moduł A



A5 - EL (5210254) Schemat Elektryczny

Schemat połączeń Condair EL 5...45 - jednostki pojedyncze "S" i "M"



A1	Ciągły regulator wilgotności (aktywny) lub czujnik wilgotności
A2	Rezystancyjny regulator wilgotności (pasywny), zworkę JP2 nastawić na 10V
A3	Regulator wilgotności On/Off, zworkę JP2 nastawić na 24V
A4	Sygnał ogranicznika
B1	Blokada wentylacji
B2	Wskaźnik przepływu powietrza
B3	Higrostat bezpieczeństwa (bardzo zalecany)
B4	Zewnętrzny styk włączania
CS	Czujniki prądu
F1	Bezpiecznik wewnętrzny zasilania 24V (1 A, zwłoczny)
F3	Bezpiecznik wewnętrzny zasilania 230V (6.3 A, zwłoczny)
F5	Bezpiecznik zewnętrzny napięcia zasilania głównego (patrz tabela w *rozdział 6.1*)
F6	Bezpiecznik zewnętrzny napięcia sterowania (max. 10 A, zwłoczny)
H1	Zdalna sygnalizacja pracy i awarii
H2	Dodatkowa karta (opcja) do sterowania zewnętrznym wentylatorem centrali klimatyzacyjnej oraz zewnętrznym zaworem do przepłukiwania przewodu dostarczającego wodę.
J1	Przewód zworki, jeżeli obwód bezpieczeństwa dmuchawy nie jest podłączony
J3	Przewód zworki, jeśli do SC1 iSC2 nie podłączono żadnych urządzeń monitorujących
J4	Zworka załączająca rezystor terminujący dla sieci Modbus lub BACnet MSTP (zworka musi być podłączona, jeśli Condair EL jest pierwszą lub ostatnią jednostką w sieci)
J7	Zworka załączająca komunikację Modbus lub BACnet MSTP poprzez interfejs RS485 (J6). Jeśli zworki brak komunikacja będzie się odbywać poprzez interfejs RS485.
K1	Stycznik sieci (napięcie zasilania głównego - grzania)
K2	Zewnętrzny obwód zabezpieczający (230V/5A)
M	Wentylator silnika
Q5	Wyłącznik napięcia głównego
Q6	Wyłącznik napięcia sterowania
SW1	Przełącznik identyfikacji modułów (musi być w położeniu "0")
THV	Zacisk napięcia grzania

A6 - EL (ELC_DWC-B-S) Instalacja

Option Abschlämmkühlung / Leitungsspülung RS Option Drain Cool / Hygiene Flush RS	2580854 2580979 2580855 2580980 2592576	condair

Artikel Nr.	Bezeichnung
2580854	Abschlämm Kühler Basisg. klein
2580979	Abschlämm Kühler Basisg. mittel
2592576	Abschlämm Kühler Bassig. gross
2580855	Abschlämm Kühler Pro. klein
2580980	Abschlämm Kühler Pro. mittel

Part no.	Description
2580854	Drainwater cooler Base small
2580979	Drainwater cooler Base medium
2592576	Drainwater cooler Base large
2580855	Drainwater cooler Pro. small
2580980	Drainwater cooler Pro. medium

Lieferumfang:

1x Doppel-Einlassventil (Art. Nr. 2580854 + 2580979)
1x Dreifach-Einlassventil (Art. Nr. 2580855 + 2580980)
1x Schmutzfänger G3/4 DN17 (Art Nr. 2580855 + 2580980)
1x Kabel Driver Board J2 - Einlassventil
1x Kühlwasserführung
1x Halter Schlauchverbindungsstutzen GS13
inkl. Verschraubungs- und Kleinmaterial
2x Komponenten für 2592576

Scope of delivery:

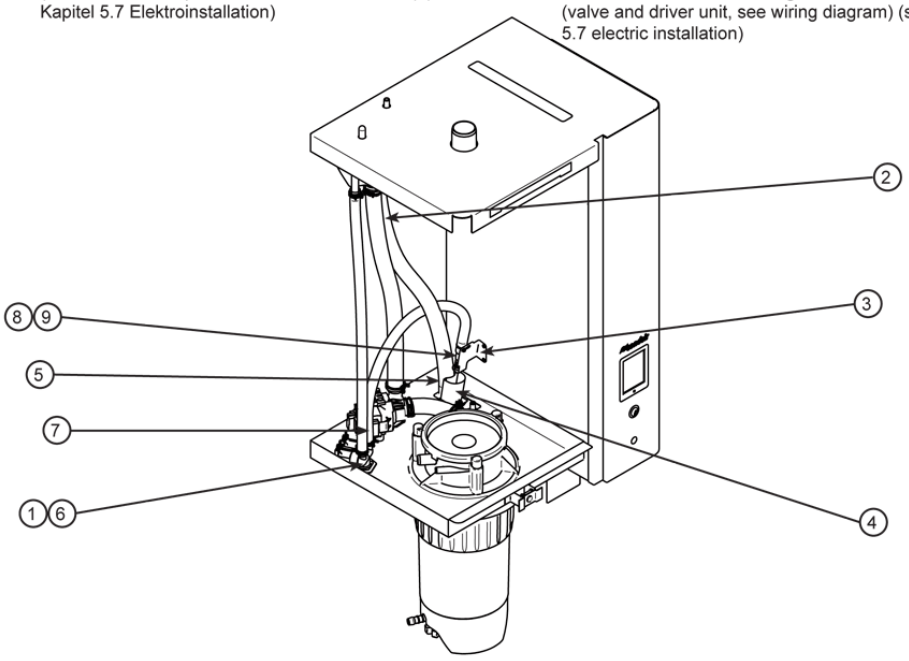
1x Double inlet valve (part no. 2580854 + 2580979)
1x Triple inlet valve (part no. 2580855 + 2580980)
1x Dirt trap G3/4 DN17 (part no. 2580855 + 2580980)
1x Cable Driver Board J2 - Inlet valve
1x Cool water duct
1x Holder hose connector GS13
incl. screwing material and small parts
2x Components for 2592576

Vorgehen:

1. Bestehendes Einlassventil demontieren
2. Ablaufwasserschlauch aus Wasserablaufbecher ziehen
3. Halter Schlauchverbindungsstutzen GS13 an Gehäuse montieren (Blechschrauben verwenden)
4. Kühlwasserführung in Wasserablaufbecher stecken
5. Ablaufwasserschlauch auf Wasserablaufbecher stecken
6. Einlassventil (je nach Retrofitkit) montieren
7. Zusatzschlauch auf Einlassventil stecken, mit Doppeldrahtklemme sichern
8. Schlauchverbindungsstutzen in Zusatzschlauch stecken
9. Ende des Zusatzschlauches (Seite des Schlauchverbindungsstutzen) mit Kabelbinder an Halter Schlauchverbindungsstutzen fest binden.
10. Zusatzkabel durchziehen und alle Kabel anschliessen (Ventil und Treiberplatine, siehe Elektroschema) (s. Kapitel 5.7 Elektroinstallation)

Procedure:

1. Remove inlet valve
2. Pull the discharged water hose out of the water drain cup
3. Fit holder of the hose coupling nozzle GS13 to housing (use sheet metal screws)
4. Put cooling water circuit into water drain cup
5. Put discharged water hose on water drain cup
6. Install inlet valve (depending on Retrofitkit)
7. Put additional hose on inlet valve and secure with a double wire clip
8. Insert hose coupling nozzle into the additional hose
9. Strap the end of the additional hose (side of hose coupling nozzle) to the holder of the hose coupling nozzle with cable tie.
10. Pull the additional wire through and connect all cables (valve and driver unit, see wiring diagram) (see Chapter 5.7 electric installation)



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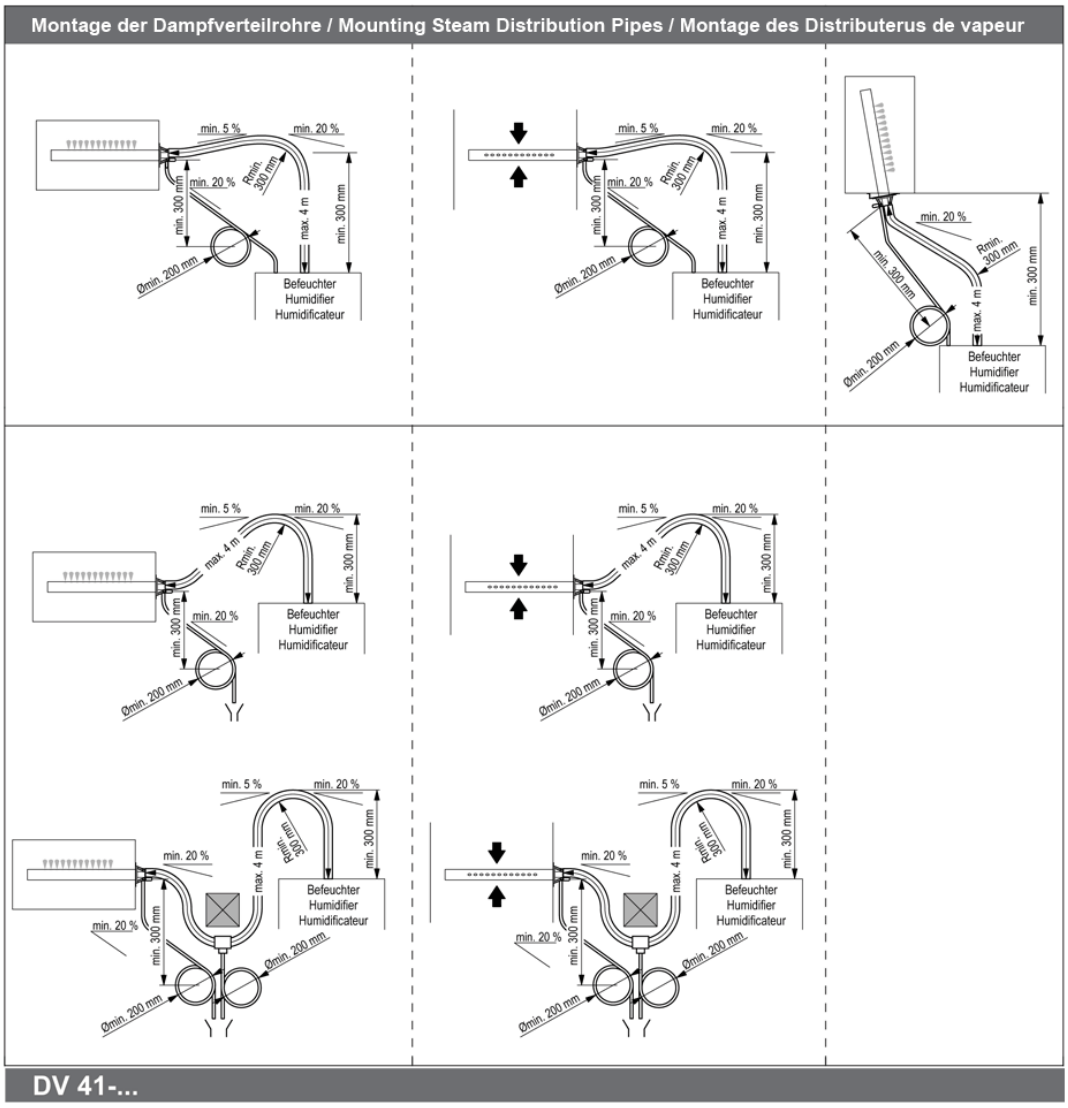
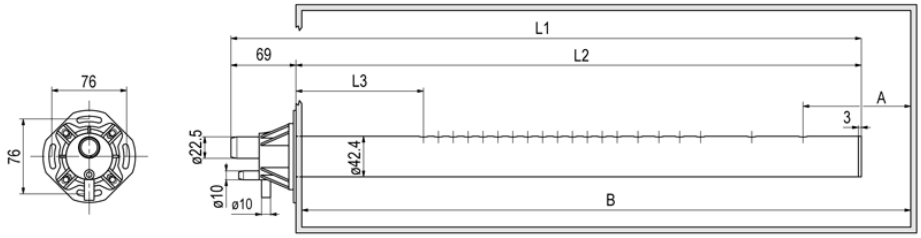
A7 - System Dystrybucji (1115270) Instalacja

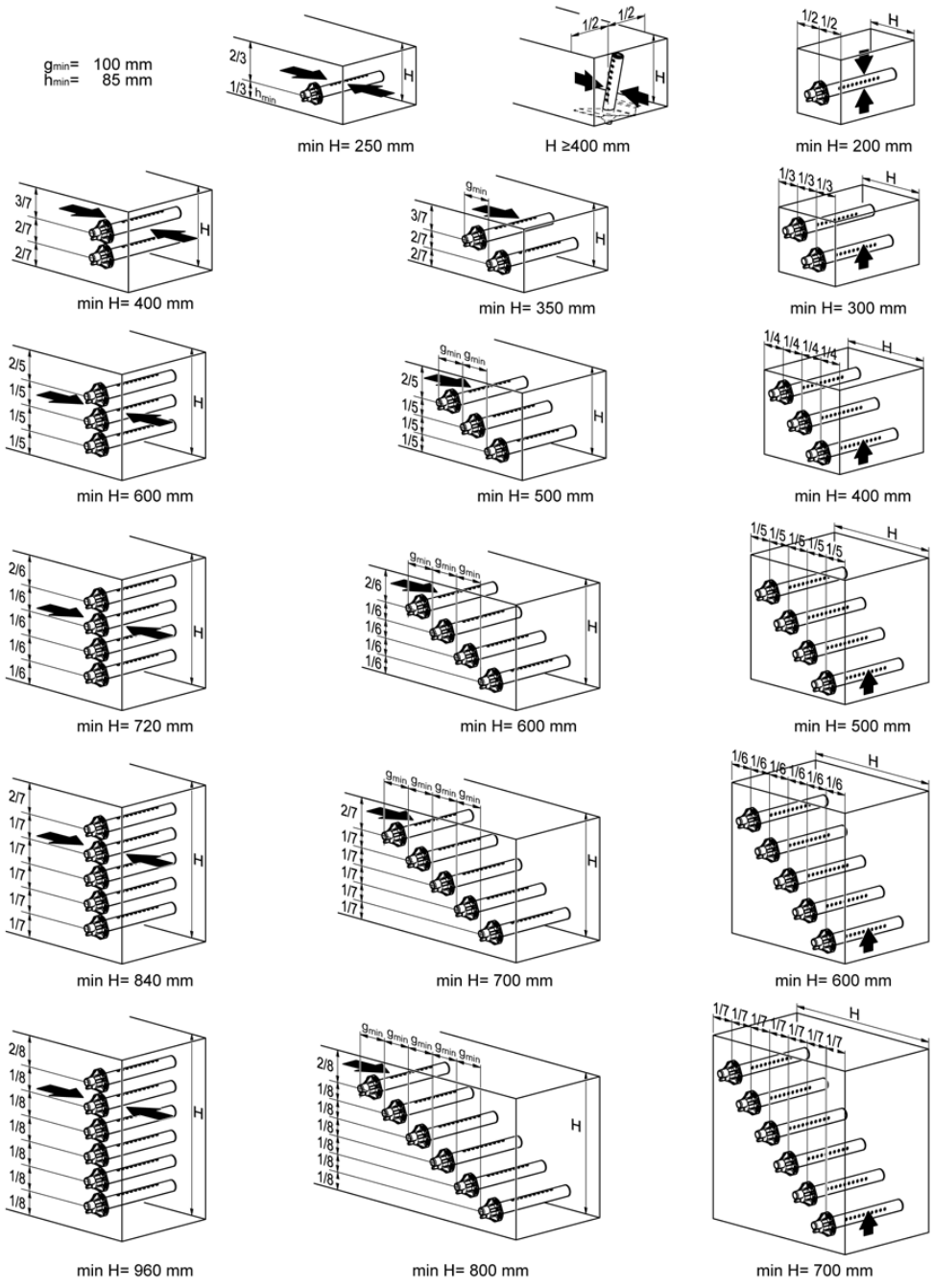




		41-200	41-350	41-500	41-650	41-800	41-1000	41-1200
L1	[mm]	271	421	571	721	871	1071	1271
L2	[mm]	202	352	502	652	802	1002	1202
L3	[mm]	57	97	159	148	159	169	164
A	[mm]	65-255	105-305	163-313	163-313	173-373	173-373	173-473
B	[mm]	210-400	400-600	600-750	750-900	900-1100	1100-1300	1300-1600
max. m_D	[kg/h]	8	8	8	8	8	8	8

A8 - System Dystrybucji (1115270) Schematyczny

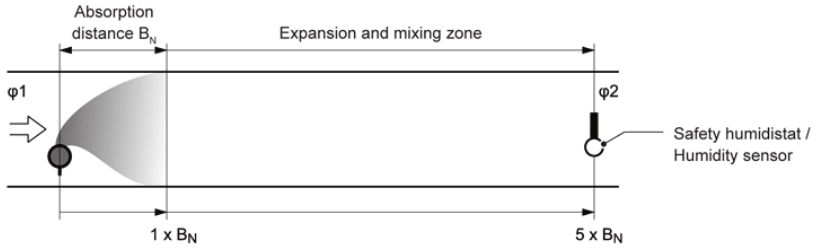
Platzierun der Dampfverteilrohre
Positioning of Steam Distribution Pipes
Placement des Distributeurs de Vapeur



A9 - System Dystrybucji (1115270) Rysunek

Absorption Distance

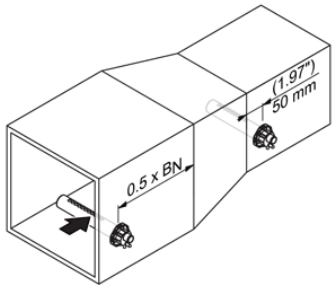
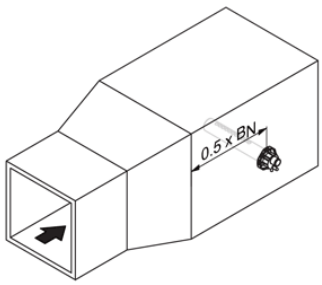
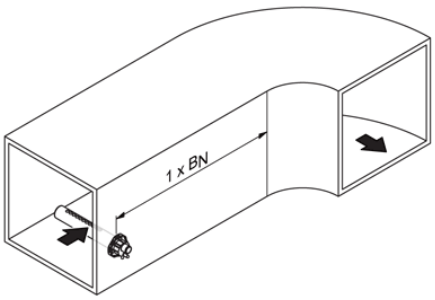
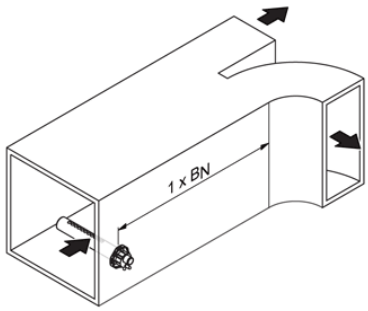
The steam, emitting from the steam distributor, requires a certain distance to be absorbed by the air so that it is no longer visible as steam. This distance is referred to as **absorption distance "B_N"** and serves as a basis for the determination of the minimum distances from the upstream components in the system



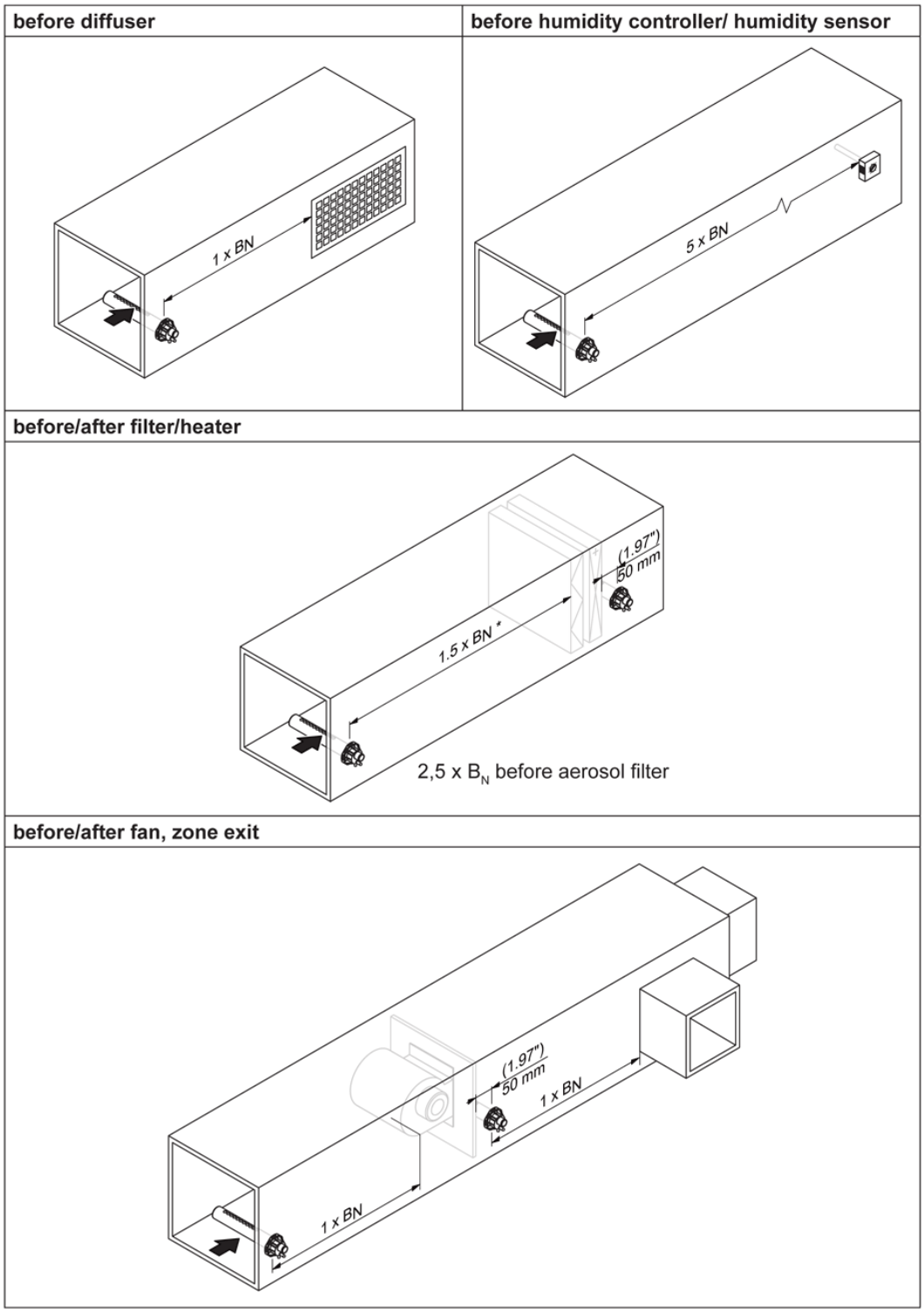
φ1: Supply air humidity **before** humidification
φ2: Supply air humidity **after** humidification

Minimum distances to be observed

To prevent the steam, that is emitting from the steam distributor, from condensing on downstream system components, a minimum distance to the steam distributor must be observed (depends on the absorption distance "B_N").

before/after constriction	after expansion
	
before bend	**before branch**
	

A10 - System Dystrybucji (1115270) Rysunek



A11 - System Dystrybucji (2586148) Rysunek

CONDAIR STEAM HOSE

DS22, DS60, DS80, Z10

- High side pressure stability
- Odourless
- Hygienic
- Inner layer as per NSF61 (drinking water)
- Outer layer as per UL94V0 (flame resistant)

TECHNICAL DATA

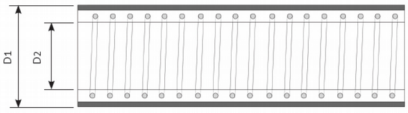
Material of inner layer	TPV 241-73 W236, pale
Material of outer layer	TPV 251-70 W232, anthracite
Material of inlay	Polyester netting, 1 zinc plated steel wire coil
Operating temperature	-25°C to 105°C
Marking	white marker tape with black lettering

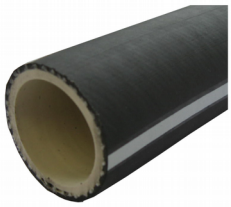
Marking

„Type“ steam hose / flame resistant - *Diameter OD / ID* mm - *Production week and year*

Example: DS22 steam hose / flame resistant - 31 / 22 mm - 0217

DIMENSIONS AND OTHER DETAILS





Item number	Type	Inner-Ø D2	Outer-Ø D1	Min. bend radius	Roll length	Order information
2586148	DS22	22.0 mm	31.0 mm	(ca. 100 mm)	20 m	Complete roll only
2586142					100 m	By the meter, up to 19 m
2586149	DS60	29.5 mm	40.0 mm	(ca. 120 mm)	20 m	Complete roll only
2586144					100 m	By the meter, up to 19 m
2586151	Z10	41.5 mm	52.5 mm	(ca. 170 mm)	20 m	Complete roll only
2586146					60 m	By the meter, up to 19 m
2586152	DS80	43.5 mm	55.5 mm	(ca. 180 mm)	20 m	Complete roll only
2586147					60 m	By the meter, up to 19 m

EN 1701

A12 - Sterownica (1103350) Rysunek

Condensate hose ø8/ø12mm

KS10 (1103350)

- aging resistant
- weather resistant

TECHNICAL DATA

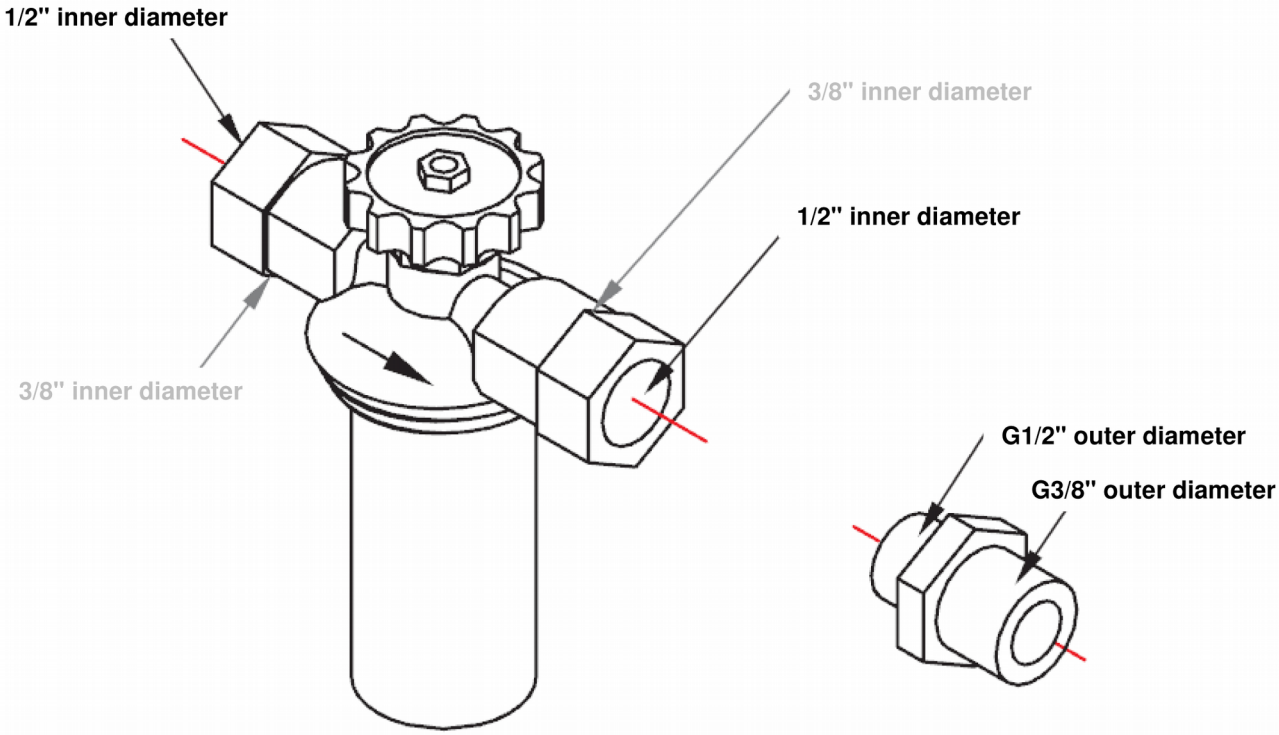
Material	EPDM, black, smooth
Hardness	70 +/- 5 Shore A
Tolerance	ISO 1307, DIN 7715-40
Operating temperature	-40 to +130 °C
Roll length	50 meters

DIMENSIONS

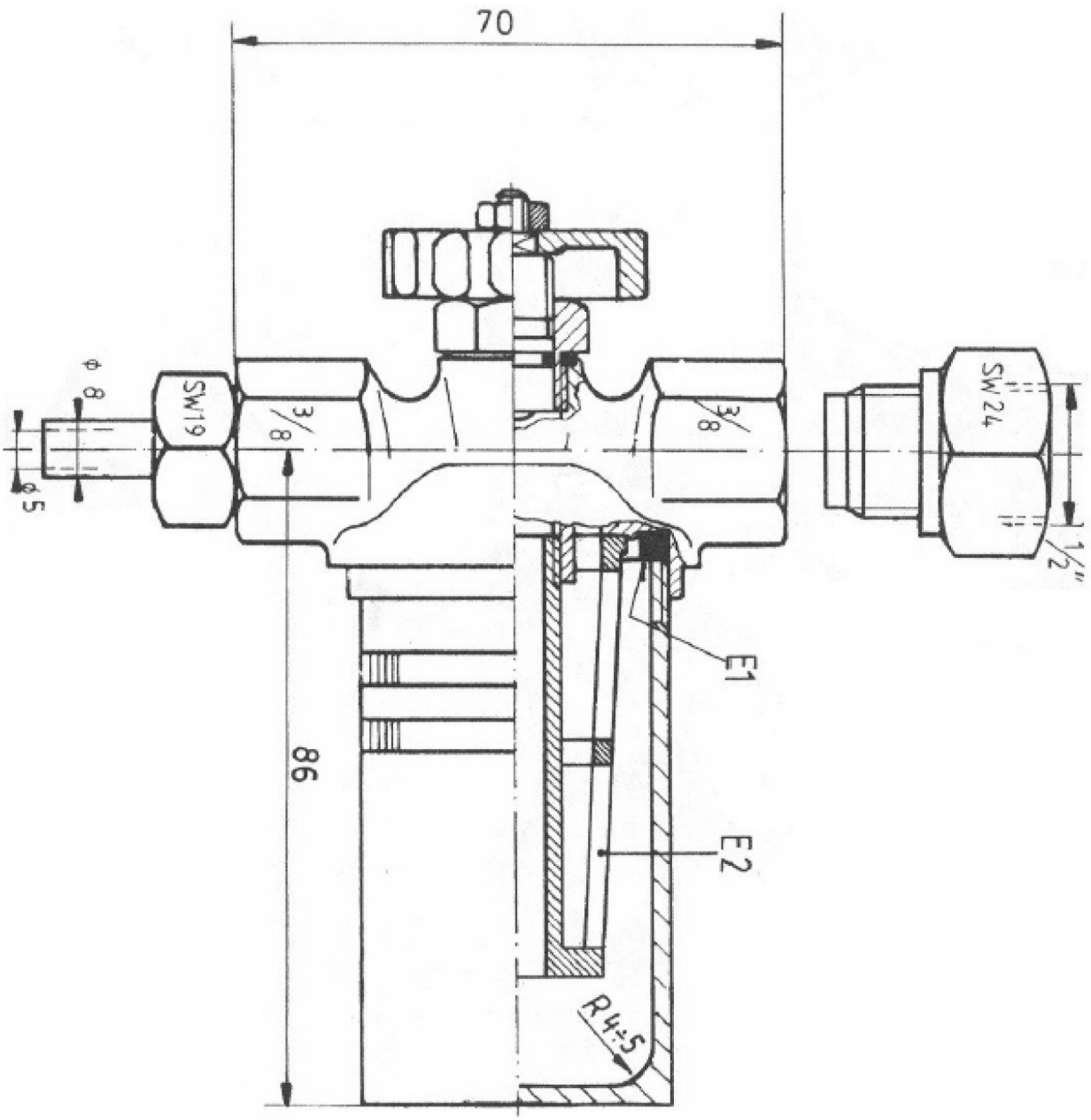
Outside diameter (mm)	12.5 +/- 0.5
Inside diameter (mm)	8.0

A13 - Sterownica (1100416) Rysunek

Z261 water inlet filter (1100416)



A14 - Sterownica (1100416) Rysunek



A15 - Sterownica (2559251) Opis

Condair CDC

Condair CDC serves for the humidity measurement in rooms. A capacitive humidity sensor and microprocessor humidity once per second. It calculates an averaging signal over a defined number of seconds and generates the output signal. This proven technology guarantees excellent reliability and long term stability. The output signal of the sensor (0…10 VDC, 0…20 mA or 2…10 VDC, 4…20 mA) may be customized by jumpers. The Condair CDC is installed directly on the duct.

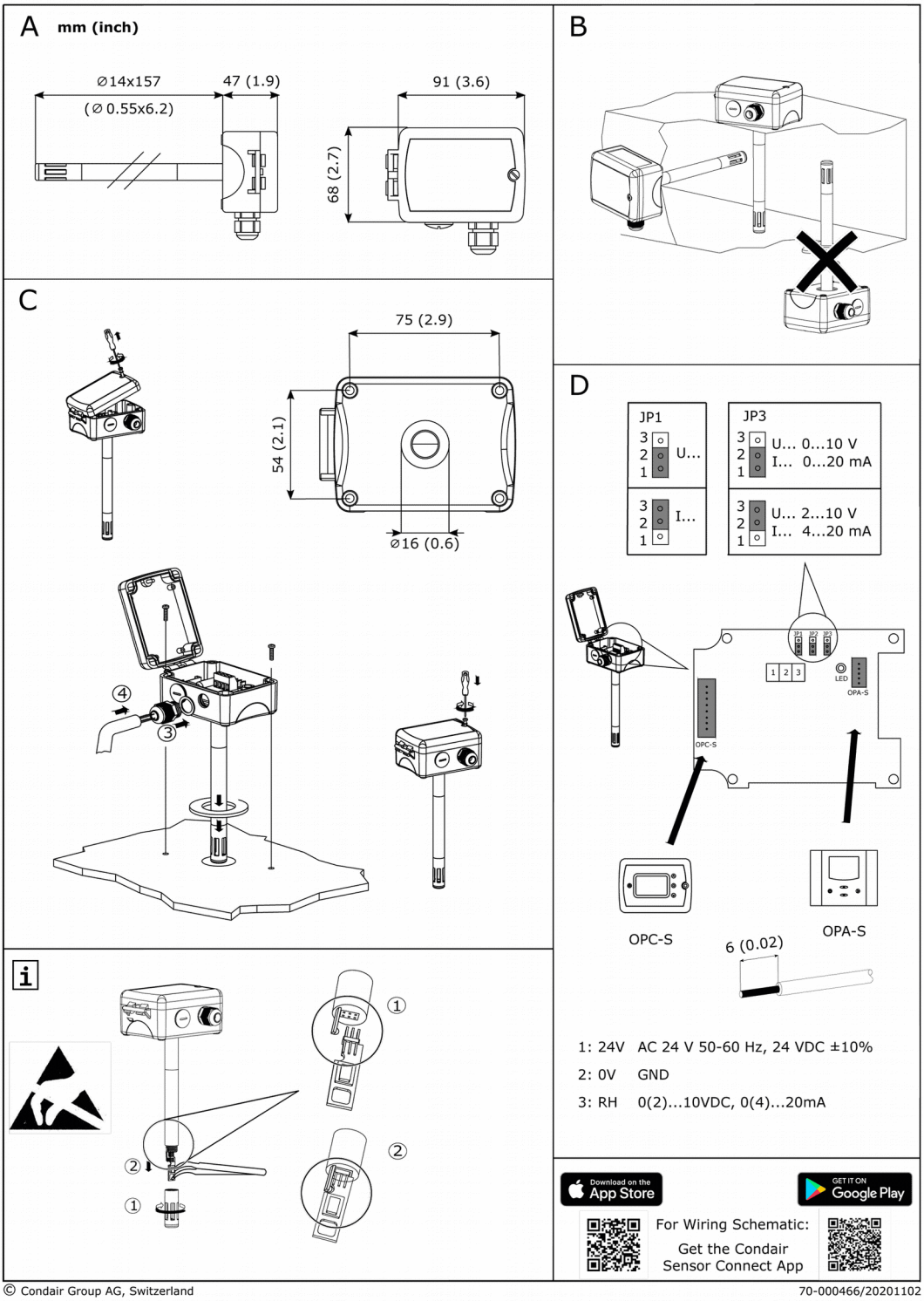
Mounting in a return air duct (recommended):
Mount the CDC in a return air duct close to the air outlet of the room but downstream from a return fan if one is present.

Mounting in a supply air duct:
Mount the CDC in a supply air duct at least three meters downstream from the nearest fan and coil and with a minimum distance of 5x the humidification distance to the steam distributor (see manual of the humidifier).

A16 - Sterownica (2559251) Instalacja

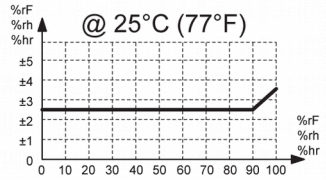
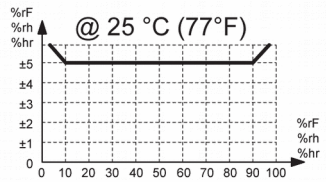
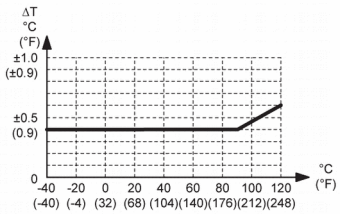
condair

CDC 2559251



A17 - Sterownica (2559251) Schematyczny

Power Supply / Stromversorgung	
Operating Voltage / Betriebsspannung	24 V AC 50/60 Hz ± 10%, 24VDC ± 10%
Power Consumption / Leistungsaufnahme	Max. 2 VA
Terminal Connectors / Klemmenanschlüsse	0.34…2.5 mm² (AWG 24…12)

Sensor Probe (Humidity) / Sensorelement (Feuchtesensor)	
Measuring element / Messelement	Capacitive Element / Kapazitives Messelement
Measuring range / Messbereich	0…100 % rH / % rh
Measuring accuracy / Messgenauigkeit	CDC / CDC-ST / CDC-NA  CDC-SL 
Hysteresis / Hysterese	± 1%
Repeatability / Wiederholbarkeit	± 0.1%
Stability / Stabilität	< 0.5% / year
Sensor probe (Temperature) / Sensorelement (Temperatursensor) - nur CDC-ST only	
Measuring element / Messelement	Passive measuring element / Passives Messelement
Measuring range Messbereich	0 ... 50 / 32 ... 122°F
Messgenauigkeit / Measuring Accuracy / Fidélité de mesure	
Wiederholbarkeit / Repeatability / Reproductibilité	0.04 °K
Stabilität / Stability / Stabilité	< 0.03 °K / year

Signal output / Signalausgänge	
Analog output / Analogausgänge	
Output Signal / Ausgangssignal	CDC und CDC-ST 0-10V oder 0…20mA / 2-10V oder 4…20mA CDC-SL und CDC-NA 2-10V fix
Resolution / Auflösung	10 Bit, 9.7 mV, 0.019.5 mA
Maximum Load / Maximale Last	20 mA, 500Ω

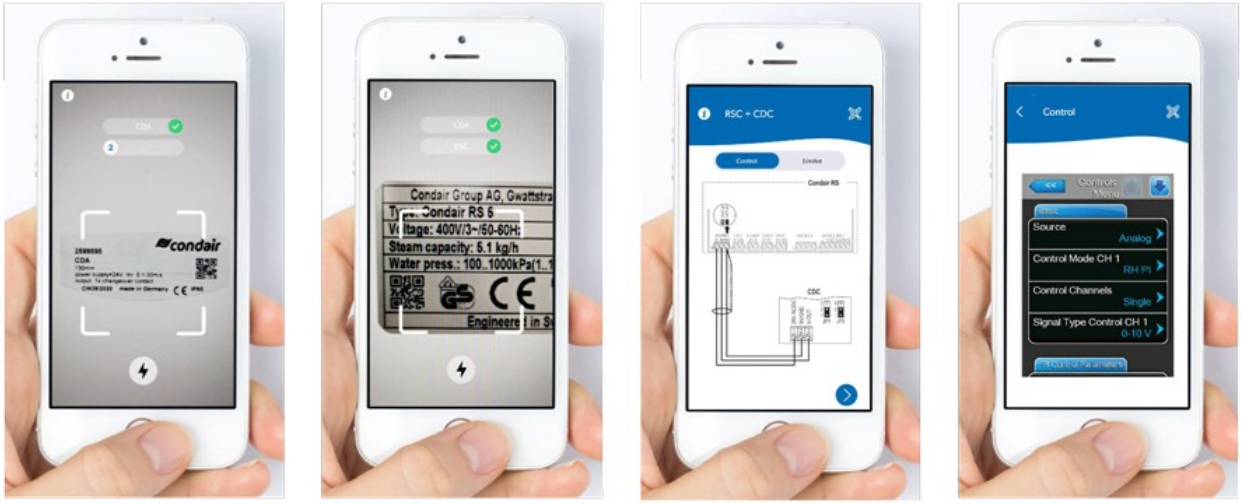
A18 - Sterownica (2559251) Schemat Elektryczny

Smartphone App - Condair Sensor Connect

Download on the App Store

GET IT ON Google Play

Scan the Sensor QR	Scan the Device QR	Get the Schematic	Get the Settings



The connection diagram quickly at hand

Condair has provided the spec labels of all sensors and humidifiers with a practical QR code so that you can quickly and conveniently view the respective connection diagram and unit configuration even without the technical manual.

Install the Condair Sensor Connect app once, open the app, scan the QR-code on the sensor as well as on the humidifier and get the relevant wiring diagram and configurations.

No matter whether you are online or offline.

Das Anschlussschema schnell im Griff

Die Typenschilder aller Fühler und die Luftbefeuchter hat Condair mit einem praktischen QR-Codeversehen, sodass Sie auch ohne das Technische Handbuch, schnell und bequem das jeweilige Anschlussschema und Gerätekonfiguration ansehen können.

Einmal die Condair Sensor Connect App installieren, App öffnen, QR Code am Fühler und Luftbefeuchter scannen und das für Sie relevante Anschlussschema und Konfigurationen erhalten.

Egal ob online oder offline.

A19 - Sterownica (2559259) Opis

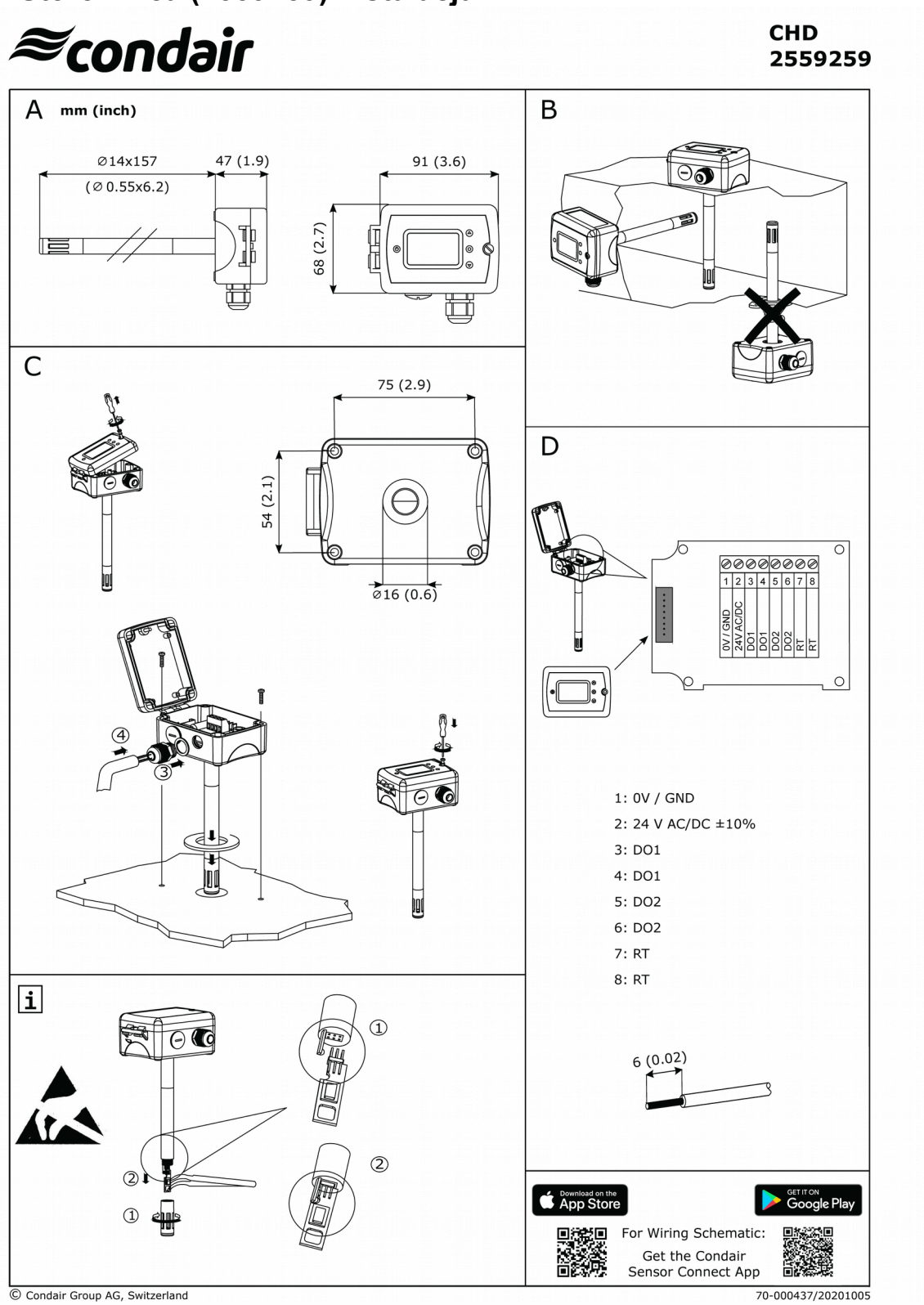
Condair CHD

The duct humidistat Condair CHD serves for humidity control (On/Off control) or as humidity monitoring device (maximum humidistat) in ducts. The Condair CHD is installed directly on the duct.

Mounting in a return air duct (recommended):
Mount the Condair CHD in a return air duct close to the air outlet of the room but downstream from a return fan if one is present.

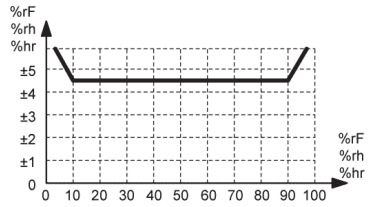
Mounting in a supply air duct:
Mount the Condair CHD in a supply air duct at least three meters downstream from the nearest fan and coil and with a minimum distance of 5x the humidification distance to the steam distributor (see manual of the humidifier).

A20 - Sterownica (2559259) Instalacja



A21 - Sterownica (2559259) Schematyczny

Power Supply / Stromversorgung	
Operating Voltage / Betriebsspannung	24 V AC 50/60 Hz ± 10%, 24VDC ± 10%
Power Consumption / Leistungsaufnahme	Max. 2 VA
Terminal Connectors / Klemmenanschlüsse	0.34…2.5 mm² (AWG 24…12)

Sensor Probe (Humidity) / Sensorelement (Feuchtesensor)	
Measuring element / Messelement	Capacitive Element / Kapazitives Messelement
	0…100 % rH / % rh
Measuring accuracy / Messgenauigkeit	 @ 25 °C (77°F)
Hysteresis / Hysterese	± 1 %rF

Signal Output / Signalausgang	
Digital Output / Digitaler Signalausgang	DO1
Switching type / Schalttyp	Relay, normally open / Relais, normal offen
Switching capacity / Schaltleistung	2(1.2) A
Switching voltage / Schaltspannung	0...250 VAC / 0...24VDC

Environment / Umgebung	
Operation / Betrieb	IEC 721-3-3
Climate Conditions / Klimatische Bedingungen	Class 3 K5
Temperature / Temperatur	0…50 °C (32…122 °F)
Humidity / Feuchtigkeit	<95 %rF non-condensing / nicht kondensierend
Transport and storage / Transport & Lagerung	IEC 721-3-2 & IEC 721-3-1
Climate conditions / Klimatische Bedingungen	Class 3 K3 und Class 1 K3
Temperature / Temperatur	-25…70 °C (-13…158 °F)
Humidity / Feuchtigkeit	<95 %rF non-condensing / nicht kondensierend
Mechanical Conditions / Mech. Bedingungen	Class 2M2